

CLAIMS

What is claimed is:

1. A method for obtaining a state of a browser containing a document on a client
5 computer system, the method comprising the steps of:
extracting, from the browser, via a capture process on the client computer system
that operates in conjunction with the browser, state information associated with the
browser and the document contained in the browser;
storing the state information in at least one content object on the client computer
10 system; and
transmitting the at least one content object from the capture process on the client
computer system to a server computer system to maintain a state of the browser in the
server computer system.
- 15 2. The method of claim 1 wherein the step of extracting includes the steps of:
opening an application programming interface from the capture process to the
browser, the application programming interface providing functions to access the state
information associated the browser and the document contained in the browser, wherein
the state information includes at least one of a document state and a session state
20 associated with a browser; and
performing, via the capture process, the functions provided by the application
programming interface to access and retrieve the state information on the client computer
system.
- 25 3. The method of claim 2 wherein:
the functions provided by the application programming interface include
document access functions to access the document contained in the browser and browser
access functions to access the state information associated with the browser; and
wherein the step of performing, via the capture process, the functions provided by
30 the application programming interface includes the steps of:

accessing the document contained within the browser for document tags existing in the document using at least one of the document access functions;

copying, into a document content object, the content associated with each document tag accessed from the document;

capturing, via at least one browser access function, at least one application session identifier associated with the document contained in the browser; and

copying the at least one application session identifier associated with the document into the document content object.

4. The method of claim 3 wherein:

the document contained in the browser is a hypertext document;

wherein the step of accessing includes the step of calling a hypertext access function provided by the application programming interface to obtain each document tag within document; and

wherein the step of copying into a document content object includes the steps of:

calling a hypertext retrieval function provided by the application programming interface to obtain hypertext content associated with each document tag in the document; and

placing the hypertext content associated with each document tag in the document into the document content object.

5. The method of claim 2 wherein the browser contains multiple documents, each associated with a document container, and wherein the step of performing the functions provided by the application programming interface to access and retrieve the state information is performed on each document in each document container to access and retrieve the state information associated with each document in each document container.

6. The method of claim 1 wherein:

the state information includes a document state and a session state associated with a browser, for each document contained in the browser; and

wherein the step of storing arranges the document state and the session state associated with a browser, for each document contained in the browser, in a format within the at least one content object, such that the at least one content object associates each document state with a session state associated with a document for each document contained in the browser.

7. The method of claim 1 wherein the step of transmitting transmits the at least one content object from the capture process to a collaboration application performing on the server computer system for distribution to participant browsers.

8. The method of claim 1 further including the steps of:

detecting an intent to initiate a collaboration session;

obtaining the capture process; and

operating the capture process to perform the steps of extracting, storing and transmitting such that the capture process captures the state information associated with the browser and the document contained in the browser upon initiation of the collaboration session and transmits the state information to the server computer system such that the server computer system can provide the state information to other participants of the collaboration session.

9. The method of claim 8 wherein the step of obtaining the capture process includes the steps of:

obtaining a version of the browser containing the document; and

determining if the version is a first value, and if so, obtaining a first version of the capture process from a first location, and if not, determining if the version is a second value, and if so, obtaining a second version of the capture process from a second location.

10. The method of claim 8 wherein the capture process is an applet stored on a server and wherein the step of obtaining the capture process includes the step of downloading the applet from the server to the client computer system to capture state information associated the browser and the document contained in the browser.

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11. The method of claim 8 wherein, in response to detecting the intent to initiate a collaboration session, the method performs the step of setting a document property of each document contained in the browser to a common value.

10 12. The method of claim 11 wherein the step of setting a document property of each document contained in browser to a common value includes the step of performing script logic to alter a document domain property of each document contained in the browser to a common domain.

15 13. A computer system comprising:
a memory configured with a browser containing at least one document;
an input-output mechanism;
a processor; and
an interconnection mechanism coupling the memory, the processor and the input-
20 output mechanism;

wherein the memory is further configured with a capture process, that when performed on the processor, causes the processor to obtain a state of the browser containing the at least one document by performing the operations of:

25 extracting, from the browser, state information in the memory
associated the browser and the at least one document contained in the
browser;
storing the state information in at least one content object in the
memory; and

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transmitting the at least one content object to a server computer system, via the input-output mechanism, to maintain a state of the browser in the server computer system.

- 5 14. The computer system of claim 13 wherein when the processor performs the operation of extracting, the processor performs the operations of:

opening an application programming interface from the capture process to the browser, the application programming interface providing functions that can be performed by the capture process, under control of the processor, to access the state
10 information associated the browser and the document contained in the browser, wherein the state information includes at least one of a document state and a session state associated with a browser; and

performing the functions provided by the application programming interface to access and retrieve the state information.

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15. The computer system of claim 14 wherein:

the functions provided by the application programming interface include document access functions to access the document contained in the browser and browser access functions to access the state information associated with the browser; and

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wherein, when the capture process is performed on the processor to perform the functions provided by the application programming interface, the capture process further causes the processor to perform the operations of:

accessing the document contained within the browser in the memory for document tags existing in the document using at least one of
25 the document access functions;

copying, into a document content object in the memory, the content associated with each document tag accessed from the document; and

capturing, via at least one browser access function, at least one application session identifier associated with the document contained in the browser; and

copying the at least application session identifier associated with the document into the document content object.

16. The computer system of claim 15 wherein:

the document contained in the browser in memory is a hypertext document;

wherein the operation of accessing, when performed by the capture process on the processor, further causes the processor to perform the operation of calling a hypertext access function provided by the application programming interface to obtain each document tag within document; and

wherein the operation of copying into a document content object, when performed by the capture process performing on the processor, further causes the processor to perform the operations of:

calling a hypertext retrieval function provided by the application programming interface to obtain hypertext content associated with each document tag in the document in the memory; and

placing the hypertext content associated with each document tag in the document into the document content object in the memory.

17. The computer system of claim 14 wherein:

the browser contains multiple documents in the memory, each document associated with a document container in memory; and

wherein the processor performs the operation of performing, via the capture process, the functions provided by the application programming interface to access and retrieve the state information on each document in each document container in the memory to access and retrieve the state information associated with each document in each document container in the memory.

18. The computer system of claim 13 wherein:

the state information includes a document state and a session state associated with a browser, for each document contained in the browser in the memory; and

5 wherein when the processor performs the operation of storing, the processor arranges the document state and the session state associated with a browser, for each document contained in the browser, in a format within the at least one content object in the memory, such that the at least one content object associates each document state with a session state associated with a document for each document contained in the browser.

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19. The computer system of claim 13 wherein when the processor performs the operation of transmitting, the processor transmits the at least one content object from the input-output mechanism to a collaboration application performing on the server computer system for distribution to participant browsers.

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20. The computer system of claim 13, wherein the memory is encoded with logic instructions that when performed on the processor further cause the processor to perform the operations of:

detecting an intent to initiate a collaboration session;

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obtaining, via the input-output mechanism, the capture process and storing the capture process in the memory; and

operating the capture process to perform the operations of extracting, storing and transmitting such that the capture process causes the processor to

(i) capture the state information associated the browser and the document

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contained in the browser in memory upon initiation of the collaboration session; and

(ii) transmit the state information to the server computer system such that the server computer system can provide the state information to other participants of the collaboration session.

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obtaining a version of the browser containing the document; and

5 capture process from a first location, and if not, determining if the version is a second value, and if so, obtaining a second version of the capture process from a second location.

document property of each document contained in the browser in the memory to a common value.

15 value, the processor performs the operation of performing script logic to alter a document domain property of each document contained in the browser in the memory to a common domain.

obtain a version of a browser containing a document; and

capture process from a first location, and if not, determining if the version is a second value, and if so, obtaining a second version of a capture process from a second location;

perform the capture process to extract and store state information associated the
er and the document contained in the browser for use by a process other than the
er.

25. A computer program product having a computer-readable medium including capture process computer program logic encoded thereon for obtaining a state of a browser containing a document on a client computer system, such that the computer program logic, when performed on at least one processor within a computer system, causes the at least one processor to perform the operations of:

extracting, from the browser, state information associated the browser and the document contained in the browser;

storing the state information in at least one content object on the client computer system;

transmitting the at least one content object from the client computer system to a server computer system to maintain a state of the browser in the server computer system.

26. The computer program product of claim 25 wherein the computer program logic that causes the processor to perform the operation of extracting further causes the processor to perform the operations of:

opening an application programming interface from the capture process to the browser, the application programming interface providing functions to access the state information associated the browser and the document contained in the browser, wherein the state information includes at least one of a document state and a session state associated with a browser; and

performing the functions provided by the application programming interface to access and retrieve the state information on the client computer system.

27. The computer program product of claim 25 wherein the computer program logic, when executed on the processor, further causes the processor to perform the operations of:

receiving a request to initiate a collaboration session;

obtaining the capture process; and

operating the capture process to perform the operations of extracting, storing and

transmitting such that the capture process captures the state information associated the

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browser and the document contained in the browser upon initiation of the collaboration session and transmits the state information to the server computer system such that the server computer system can provide the state information to other participants of the collaboration session.

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28. The computer program product of claim 25 wherein the capture process computer program logic is an applet that can be served by the server computer system to the client computer system and that can be performed on the client computer system to capture state information related to the browser on the client computer system.

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29. A method for performing collaboration between participant browsers, the method comprising the steps of:

obtaining state information from a browser process performing on a first client computer system, from within the first client computer system;

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transmitting the state information from the client computer system to a server computer system;

distributing the state information from the server computer system to at least one participant browser on a second client computer system to allow the participant browser on the second client computer system to re-create the state of the browser process

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performing on the first client computer system and to enable the participant browser on the second client computer system to enter a collaboration session with the browser process of the first client computer system at a point in the collaboration session defined by the state information.

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30. The method of claim 29 wherein the steps of a keening transmitting and distributing are performed prior to the initiation of the collaboration session between the browser process performing on the first client computer system and a collaboration server.

31. The method of claim 29 wherein:

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the steps of obtaining, transmitting and distributing are performed after the initiation of the collaboration session between the browser process performing on the first client computer system and a collaboration server; and

- 5 wherein the state information is interm state information that conveys a complete state of the browser process on the first client computer system as it exists during the existence of the collaboration session.

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